



SEQUENCE LISTING

<110> MOESTRUP, Soren  
MOLLER, Holger J.

<120> THE FUNCTION OF A HAPTOGLOBIN-HAEMOGLOBIN RECEPTOR AND THE USES  
THEREOF

<130> MOESTRUP=1A

<140> 09/977,577

<141> 2001-10-16

<150> US 60/270,120

<151> 2001-02-22

<150> DK PA 2001 00039

<151> 2001-01-11

<150> DK PA 2000 01543

<151> 2000-10-16

<160> 25

<170> PatentIn version 3.1

<210> 1

<211> 347

<212> PRT

<213> Homo sapiens

<400> 1

Met Ser Ala Leu Gly Ala Val Ile Ala Leu Leu Leu Trp Gly Gln Leu  
1 5 10 15

Phe Ala Val Asp Ser Gly Asn Asp Val Thr Asp Ile Ala Asp Asp Gly  
20 25 30

Cys Pro Lys Pro Pro Glu Ile Ala His Gly Tyr Val Glu His Ser Val  
35 40 45

Arg Tyr Gln Cys Lys Asn Tyr Tyr Lys Leu Arg Thr Glu Gly Asp Gly  
50 55 60

Val Tyr Thr Leu Asn Asn Glu Lys Gln Trp Ile Asn Lys Ala Val Gly  
65 70 75 80

Asp Lys Leu Pro Glu Cys Glu Ala Val Cys Gly Lys Pro Lys Asn Pro  
85 90 95

Ala Asn Pro Val Gln Arg Ile Leu Gly Gly His Leu Asp Ala Lys Gly

100	105	110
Ser Phe Pro Trp Gln Ala Lys Met Val Ser His His Asn Leu Thr Thr		
115	120	125
Gly Ala Thr Leu Ile Asn Glu Gln Trp Leu Leu Thr Thr Ala Lys Asn		
130	135	140
Leu Phe Leu Asn His Ser Glu Asn Ala Thr Ala Lys Asp Ile Ala Pro		
145	150	155
160		
Thr Leu Thr Leu Tyr Val Gly Lys Lys Gln Leu Val Glu Ile Glu Lys		
165	170	175
Val Val Leu His Pro Asn Tyr Ser Gln Val Asp Ile Gly Leu Ile Lys		
180	185	190
Leu Lys Gln Lys Val Ser Val Asn Glu Arg Val Met Pro Ile Cys Leu		
195	200	205
Pro Ser Lys Asp Tyr Ala Glu Val Gly Arg Val Gly Tyr Val Ser Gly		
210	215	220
Trp Gly Arg Asn Ala Asn Phe Lys Phe Thr Asp His Leu Lys Tyr Val		
225	230	235
240		
Met Leu Pro Val Ala Asp Gln Asp Gln Cys Ile Arg His Tyr Glu Gly		
245	250	255
Ser Thr Val Pro Glu Lys Lys Thr Pro Lys Ser Pro Val Gly Val Gln		
260	265	270
Pro Ile Leu Asn Glu His Thr Phe Cys Ala Gly Met Ser Lys Tyr Gln		
275	280	285
Glu Asp Thr Cys Tyr Gly Asp Ala Gly Ser Ala Phe Ala Val His Asp		
290	295	300
Leu Glu Glu Asp Thr Trp Tyr Ala Thr Gly Ile Leu Ser Phe Asp Lys		
305	310	315
320		
Ser Cys Ala Val Ala Glu Tyr Gly Val Tyr Val Lys Val Thr Ser Ile		
325	330	335

Gln Asp Trp Val Gln Lys Thr Ile Ala Glu Asn  
                   340                  345

<210> 2  
 <211> 406  
 <212> PRT  
 <213> Homo sapiens

<400> 2

Met Ser Ala Leu Gly Ala Val Ile Ala Leu Leu Leu Trp Gly Gln Leu  
 1                  5                  10                  15

Phe Ala Val Asp Ser Gly Asn Asp Val Thr Asp Ile Ala Asp Asp Gly  
                   20                  25                  30

Cys Pro Lys Pro Pro Glu Ile Ala His Gly Tyr Val Glu His Ser Val  
                   35                  40                  45

Arg Tyr Gln Cys Lys Asn Tyr Tyr Lys Leu Arg Thr Glu Gly Asp Gly  
                   50                  55                  60

Val Tyr Thr Leu Asn Asp Lys Lys Gln Trp Ile Asn Lys Ala Val Gly  
 65                  70                  75                  80

Asp Lys Leu Pro Glu Cys Glu Ala Asp Asp Gly Cys Pro Lys Pro Pro  
                   85                  90                  95

Glu Ile Ala His Gly Tyr Val Glu His Ser Val Arg Tyr Gln Cys Lys  
                   100                  105                  110

Asn Tyr Tyr Lys Leu Arg Thr Glu Gly Asp Gly Val Tyr Thr Leu Asn  
                   115                  120                  125

Asn Glu Lys Gln Trp Ile Asn Lys Ala Val Gly Asp Lys Leu Pro Glu  
                   130                  135                  140

Cys Glu Ala Val Cys Gly Lys Pro Lys Asn Pro Ala Asn Pro Val Gln  
 145                  150                  155                  160

Arg Ile Leu Gly Gly His Leu Asp Ala Lys Gly Ser Phe Pro Trp Gln  
                   165                  170                  175

Ala Lys Met Val Ser His His Asn Leu Thr Thr Gly Ala Thr Leu Ile  
                   180                  185                  190

Asn Glu Gln Trp Leu Leu Thr Thr Ala Lys Asn Leu Phe Leu Asn His  
 195 200 205

Ser Glu Asn Ala Thr Ala Lys Asp Ile Ala Pro Thr Leu Thr Leu Tyr  
 210 215 220

Val Gly Lys Lys Gln Leu Val Glu Ile Glu Lys Val Val Leu His Pro  
 225 230 235 240

Asn Tyr Ser Gln Val Asp Ile Gly Leu Ile Lys Leu Lys Gln Lys Val  
 245 250 255

Ser Val Asn Glu Arg Val Met Pro Ile Cys Leu Pro Ser Lys Asp Tyr  
 260 265 270

Ala Glu Val Gly Arg Val Gly Tyr Val Ser Gly Trp Gly Arg Asn Ala  
 275 280 285

Asn Phe Lys Phe Thr Asp His Leu Lys Tyr Val Met Leu Pro Val Ala  
 290 295 300

Asp Gln Asp Gln Cys Ile Arg His Tyr Glu Gly Ser Thr Val Pro Glu  
 305 310 315 320

Lys Lys Thr Pro Lys Ser Pro Val Gly Val Gln Pro Ile Leu Asn Glu  
 325 330 335

His Thr Phe Cys Ala Gly Met Ser Lys Tyr Gln Glu Asp Thr Cys Tyr  
 340 345 350

Gly Asp Ala Gly Ser Ala Phe Ala Val His Asp Leu Glu Glu Asp Thr  
 355 360 365

Trp Tyr Ala Thr Gly Ile Leu Ser Phe Asp Lys Ser Cys Ala Val Ala  
 370 375 380

Glu Tyr Gly Val Tyr Val Lys Val Thr Ser Ile Gln Asp Trp Val Gln  
 385 390 395 400

Lys Thr Ile Ala Glu Asn  
 405

<210> 3  
 <211> 347  
 <212> PRT  
 <213> Ateles geoffroyi

<400> 3

Met Ser Ala Leu Gly Ala Val Ile Ala Leu Leu Leu Trp Gly Gln Leu  
 1 5 10 15

Phe Ala Val Asp Ser Gly Asn Asp Val Thr Asp Ile Ala Asp Asp Gly  
 20 25 30

Cys Pro Lys Pro Pro Glu Ile Ala Asn Gly Tyr Val Glu His Leu Val  
 35 40 45

Arg Tyr Gln Cys Lys Lys Tyr Tyr Arg Leu Arg Thr Glu Gly Asp Gly  
 50 55 60

Val Tyr Thr Leu Asn Asn Glu Lys Gln Trp Thr Asn Lys Ala Val Gly  
 65 70 75 80

Asp Lys Leu Pro Glu Cys Glu Ala Val Cys Gly Lys Pro Lys Asn Pro  
 85 90 95

Ala Asn Pro Val Gln Arg Ile Leu Gly Gly His Leu Asp Ala Lys Gly  
 100 105 110

Ser Phe Pro Trp Gln Ala Lys Met Val Ser Arg His Asn Leu Thr Thr  
 115 120 125

Gly Ala Thr Leu Ile Asn Glu Gln Trp Leu Leu Thr Thr Ala Lys Asn  
 130 135 140

Leu Phe Leu Asn His Ser Glu Asn Ala Thr Ala Lys Asp Ile Ala Pro  
 145 150 155 160

Thr Leu Thr Leu Tyr Val Gly Lys Asn Gln Leu Val Glu Ile Glu Lys  
 165 170 175

Val Val Leu Tyr Pro Asn Tyr Ser Gln Val Asp Ile Gly Leu Ile Lys  
 180 185 190

Leu Lys Asp Lys Val Pro Val Asn Glu Arg Val Met Pro Ile Cys Leu  
 195 200 205

Pro Ser Lys Asp Tyr Ala Glu Val Gly Arg Val Gly Tyr Val Ser Gly  
 210 215 220

Trp Gly Arg Asn Ala Asn Phe Lys Phe Thr Asp His Leu Lys Tyr Val  
 225 230 235 240

Met Leu Pro Val Ala Asp Gln Tyr Gln Cys Val Lys His Tyr Glu Gly  
 245 250 255

Ser Thr Val Pro Glu Lys Lys Thr Pro Lys Ser Pro Val Gly Gln Gln  
 260 265 270

Pro Ile Leu Asn Glu His Thr Phe Cys Ala Gly Met Ser Lys Tyr Gln  
 275 280 285

Glu Asp Thr Cys Tyr Gly Asp Ala Gly Ser Ala Phe Ala Val His Asp  
 290 295 300

Leu Glu Glu Asp Thr Trp Tyr Ala Ala Gly Ile Leu Ser Phe Asp Lys  
 305 310 315 320

Ser Cys Gly Val Ala Glu Tyr Gly Val Tyr Val Lys Ala Thr Ser Ile  
 325 330 335

Gln Asp Trp Val Gln Lys Thr Ile Ala Glu Asn  
 340 345

<210> 4  
 <211> 347  
 <212> PRT  
 <213> Mus caroli

<400> 4

Met Arg Ala Leu Gly Ala Val Val Thr Leu Leu Leu Trp Gly Gln Leu  
 1 5 10 15

Phe Ala Val Glu Leu Gly Asn Asp Ala Met Asp Phe Glu Asp Asp Ser  
 20 25 30

Cys Pro Lys Pro Pro Glu Ile Ala Asn Gly Tyr Val Glu His Leu Val  
 35 40 45

Arg Tyr Arg Cys Arg Gln Phe Tyr Arg Leu Arg Ala Glu Gly Asp Gly  
 50 55 60

Val Tyr Thr Leu Asn Asp Glu Lys Gln Trp Met Asn Thr Val Ala Gly  
 65 70 75 80

Glu Lys Leu Pro Glu Cys Glu Ala Val Cys Gly Lys Pro Lys His Pro  
 85 90 95

Val Asp Gln Val Gln Arg Ile Ile Gly Gly Ser Met Asp Ala Lys Gly  
 100 105 110

Ser Phe Pro Trp Gln Ala Lys Met Ile Ser Arg His Gly Leu Thr Thr  
 115 120 125

Gly Ala Thr Leu Ile Ser Asp Gln Trp Leu Leu Thr Thr Ala Lys Asn  
 130 135 140

Leu Phe Leu Asn His Ser Glu Thr Ala Ser Gly Lys Asp Ile Ala Pro  
 145 150 155 160

Thr Leu Thr Leu Tyr Val Gly Lys Asn Gln Leu Val Glu Ile Glu Lys  
 165 170 175

Val Ile Leu His Pro Asn His Ser Val Val Asp Ile Gly Leu Ile Lys  
 180 185 190

Leu Lys Gln Arg Val Leu Val Thr Glu Arg Val Met Pro Ile Cys Leu  
 195 200 205

Pro Ser Lys Asp Tyr Val Ala Pro Gly Arg Val Gly Tyr Val Ser Gly  
 210 215 220

Trp Gly Arg Asn Gln Asp Phe Arg Phe Thr Asp Arg Leu Lys Tyr Val  
 225 230 235 240

Met Leu Pro Val Ala Asp Gln Asp Lys Cys Val Val His Tyr Glu Lys  
 245 250 255

Ser Thr Val Pro Glu Lys Lys Asn Phe Thr Ser Pro Val Gly Val Gln  
 260 265 270

Pro Ile Leu Asn Glu His Thr Phe Cys Ala Gly Leu Thr Lys Tyr Glu  
 275 280 285

Glu Asp Thr Cys Tyr Gly Asp Ala Gly Ser Ala Phe Ala Ile His Asp  
 290 295 300

Met Glu Glu Asp Thr Trp Tyr Ala Ala Gly Ile Leu Ser Phe Asp Lys  
 305 310 315 320

Ser Cys Ala Val Ala Glu Tyr Gly Val Tyr Val Arg Ala Thr Asp Leu  
 325 330 335

Lys Asp Trp Val Gln Glu Thr Met Ala Lys Asn  
 340 345

<210> 5  
 <211> 347  
 <212> PRT  
 <213> Mus musculus

<400> 5

Met Arg Ala Leu Gly Ala Val Val Thr Leu Leu Leu Trp Gly Gln Leu  
 1 5 10 15

Phe Ala Val Glu Leu Gly Asn Asp Ala Met Asp Phe Glu Asp Asp Ser  
 20 25 30

Cys Pro Lys Pro Pro Glu Ile Ala Asn Gly Tyr Val Glu His Leu Val  
 35 40 45

Arg Tyr Arg Cys Arg Gln Phe Tyr Arg Leu Arg Ala Glu Gly Asp Gly  
 50 55 60

Val Tyr Thr Leu Asn Asp Glu Lys Gln Trp Val Asn Thr Val Ala Gly  
 65 70 75 80

Glu Lys Leu Pro Glu Cys Glu Ala Val Cys Gly Lys Pro Lys His Pro  
 85 90 95

Val Asp Gln Val Gln Arg Ile Ile Gly Gly Ser Met Asp Ala Lys Gly  
 100 105 110

Ser Phe Pro Trp Gln Ala Lys Met Ile Ser Arg His Gly Leu Thr Thr  
 115 120 125

Gly Ala Thr Leu Ile Ser Asp Gln Trp Leu Leu Thr Thr Ala Lys Asn  
 130 135 140



Leu Phe Leu Asn His Ser Glu Thr Ala Ser Ala Lys Asp Ile Thr Pro  
 145 150 155 160  
 Thr Leu Thr Leu Tyr Val Gly Lys Asn Gln Leu Val Glu Ile Glu Lys  
 165 170 175  
 Val Val Leu His Pro Asn His Ser Val Val Asp Ile Gly Leu Ile Lys  
 180 185 190  
 Leu Lys Gln Arg Val Leu Val Thr Glu Arg Val Met Pro Ile Cys Leu  
 195 200 205  
 Pro Ser Lys Asp Tyr Ile Ala Pro Gly Arg Val Gly Tyr Val Ser Gly  
 210 215 220  
 Trp Gly Arg Asn Ala Asn Phe Arg Phe Thr Asp Arg Leu Lys Tyr Val  
 225 230 235 240  
 Met Leu Pro Val Ala Asp Gln Asp Lys Cys Val Val His Tyr Glu Asn  
 245 250 255  
 Ser Thr Val Pro Glu Lys Lys Asn Leu Thr Ser Pro Val Gly Val Gln  
 260 265 270  
 Pro Ile Leu Asn Glu His Thr Phe Cys Ala Gly Leu Thr Lys Tyr Gln  
 275 280 285  
 Glu Asp Thr Cys Tyr Gly Asp Ala Gly Ser Ala Phe Ala Ile His Asp  
 290 295 300  
 Met Glu Glu Asp Thr Trp Tyr Ala Ala Gly Ile Leu Ser Phe Asp Lys  
 305 310 315 320  
 Ser Cys Ala Val Ala Glu Tyr Gly Val Tyr Val Arg Ala Thr Asp Leu  
 325 330 335  
 Lys Asp Trp Val Gln Glu Thr Met Ala Lys Asn  
 340 345

<210> 6  
 <211> 347  
 <212> PRT  
 <213> Mus saxicola

<220>  
 <221> misc\_feature  
 <222> (311)..(311)  
 <223> Xaa is unknown

<400> 6

Met Arg Ala Leu Gly Ala Val Val Thr Leu Leu Leu Trp Gly Gln Leu  
 1 5 10 15

Phe Ala Ala Glu Leu Gly Asn Asp Ala Met Asp Phe Glu Asp Asp Ser  
 20 25 30

Cys Pro Lys Pro Pro Glu Ile Ala Asn Gly Tyr Val Glu His Leu Val  
 35 40 45

Arg Tyr Arg Cys Arg Gln Phe Tyr Arg Leu Arg Thr Glu Gly Asp Gly  
 50 55 60

Val Tyr Thr Leu Asn Asp Glu Lys Gln Trp Val Asn Thr Ala Ala Gly  
 65 70 75 80

Glu Lys Leu Pro Glu Cys Glu Ala Val Cys Gly Lys Pro Lys His Pro  
 85 90 95

Val Val Gln Val Gln Arg Ile Ile Gly Gly Ser Met Asp Ala Lys Gly  
 100 105 110

Ser Phe Pro Trp Gln Ala Lys Met Ile Ser Arg His Gly Leu Thr Thr  
 115 120 125

Gly Ala Thr Leu Ile Ser Asp Gln Trp Leu Leu Thr Thr Ala Lys Asn  
 130 135 140

Leu Phe Leu Asn His Ser Glu Thr Ala Ser Ala Lys Asp Ile Ala Pro  
 145 150 155 160

Thr Leu Thr Leu Tyr Val Gly Lys Asn Gln Leu Val Glu Ile Glu Lys  
 165 170 175

Val Val Leu His Pro Asn His Ser Val Val Asp Ile Gly Leu Ile Lys  
 180 185 190

Leu Lys Gln Arg Val Leu Val Thr Glu Arg Val Met Pro Ile Cys Leu  
 195 200 205

Pro Ser Lys Asp Tyr Val Ala Pro Gly Arg Val Gly Tyr Leu Ser Gly  
 210 215 220

Trp Gly Arg Asn Val Asn Phe Arg Phe Thr Glu Arg Phe Lys Tyr Val  
 225 230 235 240

Met Leu Pro Val Ala Asp Gln Asp Lys Cys Val Val His Tyr Glu Asn  
 245 250 255

Ser Thr Val Pro Glu Lys Lys Asn Phe Thr Ser Pro Val Gly Val Gln  
 260 265 270

Pro Ile Leu Asn Glu His Thr Phe Cys Val Gly Leu Ser Arg Tyr Gln  
 275 280 285

Glu Asp Thr Cys Tyr Gly Asp Ala Gly Ser Ala Phe Ala Ile His Asp  
 290 295 300

Met Glu Glu Asp Thr Trp Xaa Ala Ala Gly Ile Leu Ser Phe Asp Lys  
 305 310 315 320

Ser Cys Ala Val Ala Glu Tyr Gly Val Tyr Val Arg Ala Thr Asp Leu  
 325 330 335

Lys Asp Trp Val Gln Glu Thr Met Ala Lys Lys  
 340 345

<210> 7  
 <211> 347  
 <212> PRT  
 <213> Rattus norvegicus

<400> 7

Met Arg Ala Leu Gly Ala Val Val Thr Leu Leu Leu Trp Gly Gln Leu  
 1 5 10 15

Phe Ala Val Glu Leu Gly Asn Asp Ala Thr Asp Ile Glu Asp Asp Ser  
 20 25 30

Cys Pro Lys Pro Pro Glu Ile Ala Asn Gly Tyr Val Glu His Leu Val  
 35 40 45

Arg Tyr Arg Cys Arg Gln Phe Tyr Lys Leu Gln Thr Glu Gly Asp Gly

50	55	60
Ile Tyr Thr Leu Asn Ser Glu Lys Gln Trp Val Asn Pro Ala Ala Gly		
65	70	75 80
Asp Lys Leu Pro Lys Cys Glu Ala Val Cys Gly Lys Pro Lys His Pro		
	85	90 95
Val Asp Gln Val Gln Arg Ile Ile Gly Gly Ser Met Asp Ala Lys Gly		
	100	105 110
Ser Phe Pro Trp Gln Ala Lys Met Ile Ser Arg His Gly Leu Thr Thr		
	115	120 125
Gly Ala Thr Leu Ile Ser Asp Gln Trp Leu Leu Thr Thr Ala Gln Asn		
	130	135 140
Leu Phe Leu Asn His Ser Glu Asn Ala Thr Ala Lys Asp Ile Ala Pro		
145	150	155 160
Thr Leu Thr Leu Tyr Val Gly Lys Asn Gln Leu Val Glu Ile Glu Lys		
	165	170 175
Val Val Leu His Pro Glu Arg Ser Val Val Asp Ile Gly Leu Ile Lys		
	180	185 190
Leu Lys Gln Lys Val Leu Val Thr Glu Lys Val Met Pro Ile Cys Leu		
	195	200 205
Pro Ser Lys Asp Tyr Val Ala Pro Gly Arg Met Gly Tyr Val Ser Gly		
	210	215 220
Trp Gly Arg Asn Val Asn Phe Arg Phe Thr Glu Arg Leu Lys Tyr Val		
225	230	235 240
Met Leu Pro Val Ala Asp Gln Glu Lys Cys Glu Leu His Tyr Glu Lys		
	245	250 255
Ser Thr Val Pro Glu Lys Lys Gly Ala Val Thr Pro Val Gly Val Gln		
	260	265 270
Pro Ile Leu Asn Lys His Thr Phe Cys Ala Gly Leu Thr Lys Tyr Glu		
	275	280 285

Glu Asp Thr Cys Tyr Gly Asp Ala Gly Ser Ala Phe Ala Val His Asp  
 290 295 300

Thr Glu Glu Asp Thr Trp Tyr Ala Ala Gly Ile Leu Ser Phe Asp Lys  
 305 310 315 320

Ser Cys Ala Val Ala Glu Tyr Gly Val Tyr Val Lys Ala Thr Asp Leu  
 325 330 335

Lys Asp Trp Val Gln Glu Thr Met Ala Lys Asn  
 340 345

<210> 8

<211> 346

<212> PRT

<213> Mesocricetus auratus

<400> 8

Met Arg Ala Leu Gly Ala Val Val Thr Leu Leu Leu Trp Gly Gln Leu  
 1 5 10 15

Phe Ala Val Asp Leu Ser Asn Asp Ala Met Asp Thr Ala Asp Asp Ser  
 20 25 30

Cys Pro Lys Pro Pro Glu Ile Glu Asn Gly Tyr Val Glu His Leu Val  
 35 40 45

Arg Tyr Arg Cys Gln His Tyr Arg Leu Arg Thr Glu Gly Asp Gly Val  
 50 55 60

Tyr Thr Leu Asn Ser Glu Lys Gln Trp Val Asn Thr Ala Ala Gly Glu  
 65 70 75 80

Arg Leu Pro Glu Cys Glu Ala Val Cys Gly Lys Pro Lys His Pro Val  
 85 90 95

Asp Gln Val Gln Arg Ile Ile Gly Gly Ser Leu Asp Ala Lys Gly Ser  
 100 105 110

Phe Pro Trp Gln Ala Lys Met Val Ser Arg His Glu Leu Ile Thr Gly  
 115 120 125

Ala Thr Leu Ile Ser Asp Gln Trp Leu Leu Thr Thr Ala Lys Asn Leu  
 130 135 140

Phe Leu Asn His Ser Glu Asp Ala Thr Ser Lys Asp Ile Ala Pro Thr  
 145                      150                      155                      160

Leu Lys Leu Tyr Val Gly Lys Met Gln Pro Val Glu Ile Glu Lys Val  
                     165                      170                      175

Val Ile His Pro Asn Arg Ser Val Val Asp Ile Gly Val Ile Lys Leu  
                     180                      185                      190

Arg Gln Lys Val Pro Val Asn Glu Arg Val Met Pro Ile Cys Leu Pro  
                     195                      200                      205

Ser Lys Asp Tyr Ile Ala Pro Gly Arg Met Gly Tyr Val Ser Gly Trp  
                     210                      215                      220

Gly Arg Asn Ala Asn Phe Arg Phe Thr Asp Arg Leu Lys Tyr Val Met  
 225                      230                      235                      240

Leu Pro Val Ala Asp Gln Asp Ser Cys Met Leu His Tyr Glu Gly Ser  
                     245                      250                      255

Thr Val Pro Glu Lys Glu Gly Ser Lys Ser Ser Val Gly Val Gln Pro  
                     260                      265                      270

Ile Leu Asn Glu His Thr Phe Cys Ala Gly Met Thr Lys Tyr Gln Glu  
                     275                      280                      285

Asp Thr Cys Tyr Gly Asp Ala Gly Ser Ala Phe Ala Ile His Asp Leu  
                     290                      295                      300

Glu Gln Asp Thr Trp Tyr Ala Ala Gly Ile Leu Ser Phe Asp Lys Ser  
 305                      310                      315                      320

Cys Ser Val Ala Glu Tyr Gly Val Tyr Val Lys Val Asn Ser Phe Leu  
                     325                      330                      335

Asp Trp Ile Gln Glu Thr Met Ala Lys Asn  
                     340                      345

<210> 9  
 <211> 329  
 <212> PRT  
 <213> Canis familiaris

&lt;400&gt; 9

Glu Asp Thr Gly Ser Glu Ala Thr Asn Asn Thr Glu Val Ser Leu Pro  
 1 5 10 15

Lys Pro Pro Val Ile Glu Asn Gly Tyr Val Glu His Met Ile Arg Tyr  
 20 25 30

Gln Cys Lys Pro Phe Tyr Lys Leu His Thr Glu Gly Asp Gly Val Tyr  
 35 40 45

Thr Leu Asn Ser Glu Lys His Trp Thr Asn Lys Ala Val Gly Glu Lys  
 50 55 60

Leu Pro Glu Cys Glu Ala Val Cys Gly Lys Pro Lys Asn Pro Val Asp  
 65 70 75 80

Gln Val Gln Arg Ile Met Gly Gly Ser Val Asp Ala Lys Gly Ser Phe  
 85 90 95

Pro Trp Gln Ala Lys Met Val Ser His His Asn Leu Thr Ser Gly Ala  
 100 105 110

Thr Leu Ile Asn Glu Gln Trp Leu Leu Thr Thr Ala Lys Asn Leu Phe  
 115 120 125

Leu Gly His Lys Asp Asp Ala Lys Ala Asn Asp Ile Ala Pro Thr Leu  
 130 135 140

Lys Leu Tyr Val Gly Lys Asn Gln Leu Val Glu Val Glu Lys Val Val  
 145 150 155 160

Leu His Pro Asp Tyr Ser Lys Val Asp Ile Gly Leu Ile Lys Leu Lys  
 165 170 175

Gln Lys Val Pro Ile Asp Glu Arg Val Met Pro Ile Cys Leu Pro Ser  
 180 185 190

Lys Asp Tyr Ala Glu Val Gly Arg Ile Gly Tyr Val Ser Gly Trp Gly  
 195 200 205

Arg Asn Ser Asn Phe Asn Phe Thr Glu Leu Leu Lys Tyr Val Met Leu  
 210 215 220

Pro Val Ala Asp Gln Asp Lys Cys Val Gln His Tyr Glu Gly Ser Thr  
 225 230 235 240

Val Pro Glu Lys Lys Ser Pro Lys Ser Pro Val Gly Val Gln Pro Ile  
 245 250 255

Leu Asn Glu His Thr Phe Cys Ala Gly Met Ser Lys Phe Gln Glu Asp  
 260 265 270

Thr Cys Tyr Gly Asp Ala Gly Ser Ala Phe Ala Val His Asp Gln Asp  
 275 280 285

Glu Asp Thr Trp Tyr Ala Ala Gly Ile Leu Ser Phe Asp Lys Ser Cys  
 290 295 300

Thr Val Ala Glu Tyr Gly Val Tyr Val Lys Val Pro Ser Val Leu Ala  
 305 310 315 320

Trp Val Gln Glu Thr Ile Ala Gly Asn  
 325

<210> 10  
 <211> 1116  
 <212> PRT  
 <213> Homo sapiens

<400> 10

Met Val Leu Leu Glu Asp Ser Gly Ser Ala Asp Phe Arg Arg His Phe  
 1 5 10 15

Val Asn Leu Ser Pro Phe Thr Ile Thr Val Val Leu Leu Leu Ser Ala  
 20 25 30

Cys Phe Val Thr Ser Ser Leu Gly Gly Thr Asp Lys Glu Leu Arg Leu  
 35 40 45

Val Asp Gly Glu Asn Lys Cys Ser Gly Arg Val Glu Val Lys Val Gln  
 50 55 60

Glu Glu Trp Gly Thr Val Cys Asn Asn Gly Trp Ser Met Glu Ala Val  
 65 70 75 80

Ser Val Ile Cys Asn Gln Leu Gly Cys Pro Thr Ala Ile Lys Ala Pro  
 85 90 95



Gly Trp Ala Asn Ser Ser Ala Gly Ser Gly Arg Ile Trp Met Asp His  
 100 105 110

Val Ser Cys Arg Gly Asn Glu Ser Ala Leu Trp Asp Cys Lys His Asp  
 115 120 125

Gly Trp Gly Lys His Ser Asn Cys Thr His Gln Gln Asp Ala Gly Val  
 130 135 140

Thr Cys Ser Asp Gly Ser Asn Leu Glu Met Arg Leu Thr Arg Gly Gly  
 145 150 155 160

Asn Met Cys Ser Gly Arg Ile Glu Ile Lys Phe Gln Gly Arg Trp Gly  
 165 170 175

Thr Val Cys Asp Asp Asn Phe Asn Ile Asp His Ala Ser Val Ile Cys  
 180 185 190

Arg Gln Leu Glu Cys Gly Ser Ala Val Ser Phe Ser Gly Ser Ser Asn  
 195 200 205

Phe Gly Glu Gly Ser Gly Pro Ile Trp Phe Asp Asp Leu Ile Cys Asn  
 210 215 220

Gly Asn Glu Ser Ala Leu Trp Asn Cys Lys His Gln Gly Trp Gly Lys  
 225 230 235 240

His Asn Cys Asp His Ala Glu Asp Ala Gly Val Ile Cys Ser Lys Gly  
 245 250 255

Ala Asp Leu Ser Leu Arg Leu Val Asp Gly Val Thr Glu Cys Ser Gly  
 260 265 270

Arg Leu Glu Val Arg Phe Gln Gly Glu Trp Gly Thr Ile Cys Asp Asp  
 275 280 285

Gly Trp Asp Ser Tyr Asp Ala Ala Val Ala Cys Lys Gln Leu Gly Cys  
 290 295 300

Pro Thr Ala Val Thr Ala Ile Gly Arg Val Asn Ala Ser Lys Gly Phe  
 305 310 315 320

Gly His Ile Trp Leu Asp Ser Val Ser Cys Gln Gly His Glu Pro Ala  
                                   325                                  330                                  335

Val Trp Gln Cys Lys His His Glu Trp Gly Lys His Tyr Cys Asn His  
                                   340                                  345                                  350

Asn Glu Asp Ala Gly Val Thr Cys Ser Asp Gly Ser Asp Leu Glu Leu  
                                   355                                  360                                  365

Arg Leu Arg Gly Gly Gly Ser Arg Cys Ala Gly Thr Val Glu Val Glu  
                                   370                                  375                                  380

Ile Gln Arg Leu Leu Gly Lys Val Cys Asp Arg Gly Trp Gly Leu Lys  
                                   385                                  390                                  395                                  400

Glu Ala Asp Val Val Cys Arg Gln Leu Gly Cys Gly Ser Ala Leu Lys  
                                   405                                  410                                  415

Thr Ser Tyr Gln Val Tyr Ser Lys Ile Gln Ala Thr Asn Thr Trp Leu  
                                   420                                  425                                  430

Phe Leu Ser Ser Cys Asn Gly Asn Glu Thr Ser Leu Trp Asp Cys Lys  
                                   435                                  440                                  445

Asn Trp Gln Trp Gly Gly Leu Thr Cys Asp His Tyr Glu Glu Ala Lys  
                                   450                                  455                                  460

Ile Thr Cys Ser Ala His Arg Glu Pro Arg Leu Val Gly Gly Asp Ile  
                                   465                                  470                                  475                                  480

Pro Cys Ser Gly Arg Val Glu Val Lys His Gly Asp Thr Trp Gly Ser  
                                   485                                  490                                  495

Ile Cys Asp Ser Asp Phe Ser Leu Glu Ala Ala Ser Val Leu Cys Arg  
                                   500                                  505                                  510

Glu Leu Gln Cys Gly Thr Val Val Ser Ile Leu Gly Gly Ala His Phe  
                                   515                                  520                                  525

Gly Glu Gly Asn Gly Gln Ile Trp Ala Glu Glu Phe Gln Cys Glu Gly  
                                   530                                  535                                  540

His Glu Ser His Leu Ser Leu Cys Pro Val Ala Pro Arg Pro Glu Gly  
                                   545                                  550                                  555                                  560



Gly Lys Glu Ser Arg Ile Trp Gln Cys His Ser His Gly Trp Gly Gln  
 785 790 795 800

Gln Asn Cys Arg His Lys Glu Asp Ala Gly Val Ile Cys Ser Glu Phe  
 805 810 815

Met Ser Leu Arg Leu Thr Ser Glu Ala Ser Arg Glu Ala Cys Ala Gly  
 820 825 830

Arg Leu Glu Val Phe Tyr Asn Gly Ala Trp Gly Thr Val Gly Lys Ser  
 835 840 845

Ser Met Ser Glu Thr Thr Val Gly Val Val Cys Arg Gln Leu Gly Cys  
 850 855 860

Ala Asp Lys Gly Lys Ile Asn Pro Ala Ser Leu Asp Lys Ala Met Ser  
 865 870 875 880

Ile Pro Met Trp Val Asp Asn Val Gln Cys Pro Lys Gly Pro Asp Thr  
 885 890 895

Leu Trp Gln Cys Pro Ser Ser Pro Trp Glu Lys Arg Leu Ala Ser Pro  
 900 905 910

Ser Glu Glu Thr Trp Ile Thr Cys Asp Asn Lys Ile Arg Leu Gln Glu  
 915 920 925

Gly Pro Thr Ser Cys Ser Gly Arg Val Glu Ile Trp His Gly Gly Ser  
 930 935 940

Trp Gly Thr Val Cys Asp Asp Ser Trp Asp Leu Asp Asp Ala Gln Val  
 945 950 955 960

Val Cys Gln Gln Leu Gly Cys Gly Pro Ala Leu Lys Ala Phe Lys Glu  
 965 970 975

Ala Glu Phe Gly Gln Gly Thr Gly Pro Ile Trp Leu Asn Glu Val Lys  
 980 985 990

Cys Lys Gly Asn Glu Ser Ser Leu Trp Asp Cys Pro Ala Arg Arg Trp  
 995 1000 1005

Gly His Ser Glu Cys Gly His Lys Glu Asp Ala Ala Val Asn Cys  
 1010 1015 1020

Thr Asp Ile Ser Val Gln Lys Thr Pro Gln Lys Ala Thr Thr Gly  
 1025 1030 1035

Arg Ser Ser Arg Gln Ser Ser Phe Ile Ala Val Gly Ile Leu Gly  
 1040 1045 1050

Val Val Leu Leu Ala Ile Phe Val Ala Leu Phe Phe Leu Thr Lys  
 1055 1060 1065

Lys Arg Arg Gln Arg Gln Arg Leu Ala Val Ser Ser Arg Gly Glu  
 1070 1075 1080

Asn Leu Val His Gln Ile Gln Tyr Arg Glu Met Asn Ser Cys Leu  
 1085 1090 1095

Asn Ala Asp Asp Leu Asp Leu Met Asn Ser Ser Gly Gly His Ser  
 1100 1105 1110

Glu Pro His  
 1115

<210> 11  
 <211> 1149  
 <212> PRT  
 <213> Homo sapiens

<400> 11

Met Val Leu Leu Glu Asp Ser Gly Ser Ala Asp Phe Arg Arg His Phe  
 1 5 10 15

Val Asn Leu Ser Pro Phe Thr Ile Thr Val Val Leu Leu Leu Ser Ala  
 20 25 30

Cys Phe Val Thr Ser Ser Leu Gly Gly Thr Asp Lys Glu Leu Arg Leu  
 35 40 45

Val Asp Gly Glu Asn Lys Cys Ser Gly Arg Val Glu Val Lys Val Gln  
 50 55 60

Glu Glu Trp Gly Thr Val Cys Asn Asn Gly Trp Ser Met Glu Ala Val  
 65 70 75 80

Ser Val Ile Cys Asn Gln Leu Gly Cys Pro Thr Ala Ile Lys Ala Pro



Gly His Ile Trp Leu Asp Ser Val Ser Cys Gln Gly His Glu Pro Ala  
 325 330 335  
 Val Trp Gln Cys Lys His His Glu Trp Gly Lys His Tyr Cys Asn His  
 340 345 350  
 Asn Glu Asp Ala Gly Val Thr Cys Ser Asp Gly Ser Asp Leu Glu Leu  
 355 360 365  
 Arg Leu Arg Gly Gly Gly Ser Arg Cys Ala Gly Thr Val Glu Val Glu  
 370 375 380  
 Ile Gln Arg Leu Leu Gly Lys Val Cys Asp Arg Gly Trp Gly Leu Lys  
 385 390 395 400  
 Glu Ala Asp Val Val Cys Arg Gln Leu Gly Cys Gly Ser Ala Leu Lys  
 405 410 415  
 Thr Ser Tyr Gln Val Tyr Ser Lys Ile Gln Ala Thr Asn Thr Trp Leu  
 420 425 430  
 Phe Leu Ser Ser Cys Asn Gly Asn Glu Thr Ser Leu Trp Asp Cys Lys  
 435 440 445  
 Asn Trp Gln Trp Gly Gly Leu Thr Cys Asp His Tyr Glu Glu Ala Lys  
 450 455 460  
 Ile Thr Cys Ser Ala His Arg Glu Pro Arg Leu Val Gly Gly Asp Ile  
 465 470 475 480  
 Pro Cys Ser Gly Arg Val Glu Val Lys His Gly Asp Thr Trp Gly Ser  
 485 490 495  
 Ile Cys Asp Ser Asp Phe Ser Leu Glu Ala Ala Ser Val Leu Cys Arg  
 500 505 510  
 Glu Leu Gln Cys Gly Thr Val Val Ser Ile Leu Gly Gly Ala His Phe  
 515 520 525  
 Gly Glu Gly Asn Gly Gln Ile Trp Ala Glu Glu Phe Gln Cys Glu Gly  
 530 535 540  
 His Glu Ser His Leu Ser Leu Cys Pro Val Ala Pro Arg Pro Glu Gly

545		550		555		560
Thr Cys Ser His	Ser Arg Asp Val Gly Val Val Cys Ser Ser Lys Thr					
	565		570			575
Gln Lys Thr Ser	Leu Ile Gly Ser Tyr Thr Val Lys Gly Thr Gly Leu					
	580		585			590
Gly Ser His Ser	Cys Leu Phe Leu Lys Pro Cys Leu Leu Pro Gly Tyr					
	595		600			605
Thr Glu Ile Arg	Leu Val Asn Gly Lys Thr Pro Cys Glu Gly Arg Val					
	610		615			620
Glu Leu Lys Thr	Leu Gly Ala Trp Gly Ser Leu Cys Asn Ser His Trp					
	625		630			635
Asp Ile Glu Asp	Ala His Val Leu Cys Gln Gln Leu Lys Cys Gly Val					
	645		650			655
Ala Leu Ser Thr	Pro Gly Gly Ala Arg Phe Gly Lys Gly Asn Gly Gln					
	660		665			670
Ile Trp Arg His	Met Phe His Cys Thr Gly Thr Glu Gln His Met Gly					
	675		680			685
Asp Cys Pro Val	Thr Ala Leu Gly Ala Ser Leu Cys Pro Ser Glu Gln					
	690		695			700
Val Ala Ser Val	Ile Cys Ser Gly Asn Gln Ser Gln Thr Leu Ser Ser					
	705		710			715
Cys Asn Ser Ser	Ser Leu Gly Pro Thr Arg Pro Thr Ile Pro Glu Glu					
	725		730			735
Ser Ala Val Ala	Cys Ile Glu Ser Gly Gln Leu Arg Leu Val Asn Gly					
	740		745			750
Gly Gly Arg Cys	Ala Gly Arg Val Glu Ile Tyr His Glu Gly Ser Trp					
	755		760			765
Gly Thr Ile Cys	Asp Asp Ser Trp Asp Leu Ser Asp Ala His Val Val					
	770		775			780



Cys Arg Gln Leu Gly Cys Gly Glu Ala Ile Asn Ala Thr Gly Ser Ala  
785 790 795 800

His Phe Gly Glu Gly Thr Gly Pro Ile Trp Leu Asp Glu Met Lys Cys  
805 810 815

Asn Gly Lys Glu Ser Arg Ile Trp Gln Cys His Ser His Gly Trp Gly  
820 825 830

Gln Gln Asn Cys Arg His Lys Glu Asp Ala Gly Val Ile Cys Ser Glu  
835 840 845

Phe Met Ser Leu Arg Leu Thr Ser Glu Ala Ser Arg Glu Ala Cys Ala  
850 855 860

Gly Arg Leu Glu Val Phe Tyr Asn Gly Ala Trp Gly Thr Val Gly Lys  
865 870 875 880

Ser Ser Met Ser Glu Thr Thr Val Gly Val Val Cys Arg Gln Leu Gly  
885 890 895

Cys Ala Asp Lys Gly Lys Ile Asn Pro Ala Ser Leu Asp Lys Ala Met  
900 905 910

Ser Ile Pro Met Trp Val Asp Asn Val Gln Cys Pro Lys Gly Pro Asp  
915 920 925

Thr Leu Trp Gln Cys Pro Ser Ser Pro Trp Glu Lys Arg Leu Ala Ser  
930 935 940

Pro Ser Glu Glu Thr Trp Ile Thr Cys Asp Asn Lys Ile Arg Leu Gln  
945 950 955 960

Glu Gly Pro Thr Ser Cys Ser Gly Arg Val Glu Ile Trp His Gly Gly  
965 970 975

Ser Trp Gly Thr Val Cys Asp Asp Ser Trp Asp Leu Asp Asp Ala Gln  
980 985 990

Val Val Cys Gln Gln Leu Gly Cys Gly Pro Ala Leu Lys Ala Phe Lys  
995 1000 1005

Glu Ala Glu Phe Gly Gln Gly Thr Gly Pro Ile Trp Leu Asn Glu

1010		1015		1020
Val Lys Cys Lys Gly Asn Glu Ser Ser Leu Trp Asp Cys Pro Ala				
1025		1030		1035
Arg Arg Trp Gly His Ser Glu Cys Gly His Lys Glu Asp Ala Ala				
1040		1045		1050
Val Asn Cys Thr Asp Ile Ser Val Gln Lys Thr Pro Gln Lys Ala				
1055		1060		1065
Thr Thr Gly Arg Ser Ser Arg Gln Ser Ser Phe Ile Ala Val Gly				
1070		1075		1080
Ile Leu Gly Val Val Leu Leu Ala Ile Phe Val Ala Leu Phe Phe				
1085		1090		1095
Leu Thr Lys Lys Arg Arg Gln Arg Gln Arg Leu Ala Val Ser Ser				
1100		1105		1110
Arg Gly Glu Asn Leu Val His Gln Ile Gln Tyr Arg Glu Met Asn				
1115		1120		1125
Ser Cys Leu Asn Ala Asp Asp Leu Asp Leu Met Asn Ser Ser Gly				
1130		1135		1140
Gly His Ser Glu Pro His				
1145				
<210>	12			
<211>	1156			
<212>	PRT			
<213>	Homo sapiens			
<400>	12			
Met Val Leu Leu Glu Asp Ser Gly Ser Ala Asp Phe Arg Arg His Phe				
1		5	10	15
Val Asn Leu Ser Pro Phe Thr Ile Thr Val Val Leu Leu Leu Ser Ala				
	20		25	30
Cys Phe Val Thr Ser Ser Leu Gly Gly Thr Asp Lys Glu Leu Arg Leu				
	35		40	45

Val Asp Gly Glu Asn Lys Cys Ser Gly Arg Val Glu Val Lys Val Gln  
50 55 60

Glu Glu Trp Gly Thr Val Cys Asn Asn Gly Trp Ser Met Glu Ala Val  
65 70 75 80

Ser Val Ile Cys Asn Gln Leu Gly Cys Pro Thr Ala Ile Lys Ala Pro  
85 90 95

Gly Trp Ala Asn Ser Ser Ala Gly Ser Gly Arg Ile Trp Met Asp His  
100 105 110

Val Ser Cys Arg Gly Asn Glu Ser Ala Leu Trp Asp Cys Lys His Asp  
115 120 125

Gly Trp Gly Lys His Ser Asn Cys Thr His Gln Gln Asp Ala Gly Val  
130 135 140

Thr Cys Ser Asp Gly Ser Asn Leu Glu Met Arg Leu Thr Arg Gly Gly  
145 150 155 160

Asn Met Cys Ser Gly Arg Ile Glu Ile Lys Phe Gln Gly Arg Trp Gly  
165 170 175

Thr Val Cys Asp Asp Asn Phe Asn Ile Asp His Ala Ser Val Ile Cys  
180 185 190

Arg Gln Leu Glu Cys Gly Ser Ala Val Ser Phe Ser Gly Ser Ser Asn  
195 200 205

Phe Gly Glu Gly Ser Gly Pro Ile Trp Phe Asp Asp Leu Ile Cys Asn  
210 215 220

Gly Asn Glu Ser Ala Leu Trp Asn Cys Lys His Gln Gly Trp Gly Lys  
225 230 235 240

His Asn Cys Asp His Ala Glu Asp Ala Gly Val Ile Cys Ser Lys Gly  
245 250 255

Ala Asp Leu Ser Leu Arg Leu Val Asp Gly Val Thr Glu Cys Ser Gly  
260 265 270

Arg Leu Glu Val Arg Phe Gln Gly Glu Trp Gly Thr Ile Cys Asp Asp  
275 280 285

Gly Trp Asp Ser Tyr Asp Ala Ala Val Ala Cys Lys Gln Leu Gly Cys  
 290 295 300

Pro Thr Ala Val Thr Ala Ile Gly Arg Val Asn Ala Ser Lys Gly Phe  
 305 310 315 320

Gly His Ile Trp Leu Asp Ser Val Ser Cys Gln Gly His Glu Pro Ala  
 325 330 335

Val Trp Gln Cys Lys His His Glu Trp Gly Lys His Tyr Cys Asn His  
 340 345 350

Asn Glu Asp Ala Gly Val Thr Cys Ser Asp Gly Ser Asp Leu Glu Leu  
 355 360 365

Arg Leu Arg Gly Gly Gly Ser Arg Cys Ala Gly Thr Val Glu Val Glu  
 370 375 380

Ile Gln Arg Leu Leu Gly Lys Val Cys Asp Arg Gly Trp Gly Leu Lys  
 385 390 395 400

Glu Ala Asp Val Val Cys Arg Gln Leu Gly Cys Gly Ser Ala Leu Lys  
 405 410 415

Thr Ser Tyr Gln Val Tyr Ser Lys Ile Gln Ala Thr Asn Thr Trp Leu  
 420 425 430

Phe Leu Ser Ser Cys Asn Gly Asn Glu Thr Ser Leu Trp Asp Cys Lys  
 435 440 445

Asn Trp Gln Trp Gly Gly Leu Thr Cys Asp His Tyr Glu Glu Ala Lys  
 450 455 460

Ile Thr Cys Ser Ala His Arg Glu Pro Arg Leu Val Gly Gly Asp Ile  
 465 470 475 480

Pro Cys Ser Gly Arg Val Glu Val Lys His Gly Asp Thr Trp Gly Ser  
 485 490 495

Ile Cys Asp Ser Asp Phe Ser Leu Glu Ala Ala Ser Val Leu Cys Arg  
 500 505 510

Glu Leu Gln Cys Gly Thr Val Val Ser Ile Leu Gly Gly Ala His Phe  
 515 520 525

Gly Glu Gly Asn Gly Gln Ile Trp Ala Glu Glu Phe Gln Cys Glu Gly  
 530 535 540

His Glu Ser His Leu Ser Leu Cys Pro Val Ala Pro Arg Pro Glu Gly  
 545 550 555 560

Thr Cys Ser His Ser Arg Asp Val Gly Val Val Cys Ser Arg Tyr Thr  
 565 570 575

Glu Ile Arg Leu Val Asn Gly Lys Thr Pro Cys Glu Gly Arg Val Glu  
 580 585 590

Leu Lys Thr Leu Gly Ala Trp Gly Ser Leu Cys Asn Ser His Trp Asp  
 595 600 605

Ile Glu Asp Ala His Val Leu Cys Gln Gln Leu Lys Cys Gly Val Ala  
 610 615 620

Leu Ser Thr Pro Gly Gly Ala Arg Phe Gly Lys Gly Asn Gly Gln Ile  
 625 630 635 640

Trp Arg His Met Phe His Cys Thr Gly Thr Glu Gln His Met Gly Asp  
 645 650 655

Cys Pro Val Thr Ala Leu Gly Ala Ser Leu Cys Pro Ser Glu Gln Val  
 660 665 670

Ala Ser Val Ile Cys Ser Gly Asn Gln Ser Gln Thr Leu Ser Ser Cys  
 675 680 685

Asn Ser Ser Ser Leu Gly Pro Thr Arg Pro Thr Ile Pro Glu Glu Ser  
 690 695 700

Ala Val Ala Cys Ile Glu Ser Gly Gln Leu Arg Leu Val Asn Gly Gly  
 705 710 715 720

Gly Arg Cys Ala Gly Arg Val Glu Ile Tyr His Glu Gly Ser Trp Gly  
 725 730 735

Thr Ile Cys Asp Asp Ser Trp Asp Leu Ser Asp Ala His Val Val Cys  
 740 745 750

Arg Gln Leu Gly Cys Gly Glu Ala Ile Asn Ala Thr Gly Ser Ala His  
 755 760 765  
 Phe Gly Glu Gly Thr Gly Pro Ile Trp Leu Asp Glu Met Lys Cys Asn  
 770 775 780  
 Gly Lys Glu Ser Arg Ile Trp Gln Cys His Ser His Gly Trp Gly Gln  
 785 790 795 800  
 Gln Asn Cys Arg His Lys Glu Asp Ala Gly Val Ile Cys Ser Glu Phe  
 805 810 815  
 Met Ser Leu Arg Leu Thr Ser Glu Ala Ser Arg Glu Ala Cys Ala Gly  
 820 825 830  
 Arg Leu Glu Val Phe Tyr Asn Gly Ala Trp Gly Thr Val Gly Lys Ser  
 835 840 845  
 Ser Met Ser Glu Thr Thr Val Gly Val Val Cys Arg Gln Leu Gly Cys  
 850 855 860  
 Ala Asp Lys Gly Lys Ile Asn Pro Ala Ser Leu Asp Lys Ala Met Ser  
 865 870 875 880  
 Ile Pro Met Trp Val Asp Asn Val Gln Cys Pro Lys Gly Pro Asp Thr  
 885 890 895  
 Leu Trp Gln Cys Pro Ser Ser Pro Trp Glu Lys Arg Leu Ala Ser Pro  
 900 905 910  
 Ser Glu Glu Thr Trp Ile Thr Cys Asp Asn Lys Ile Arg Leu Gln Glu  
 915 920 925  
 Gly Pro Thr Ser Cys Ser Gly Arg Val Glu Ile Trp His Gly Gly Ser  
 930 935 940  
 Trp Gly Thr Val Cys Asp Asp Ser Trp Asp Leu Asp Asp Ala Gln Val  
 945 950 955 960  
 Val Cys Gln Gln Leu Gly Cys Gly Pro Ala Leu Lys Ala Phe Lys Glu  
 965 970 975



Val Asn Leu Ser Pro Phe Thr Ile Thr Val Val Leu Leu Leu Ser Ala  
                   20                                  25                                  30

Cys Phe Val Thr Ser Ser Leu Gly Gly Thr Asp Lys Glu Leu Arg Leu  
           35                                  40                                  45

Val Asp Gly Glu Asn Lys Cys Ser Gly Arg Val Glu Val Lys Val Gln  
       50                                  55                                  60

Glu Glu Trp Gly Thr Val Cys Asn Asn Gly Trp Ser Met Glu Ala Val  
   65                                  70                                  75                                  80

Ser Val Ile Cys Asn Gln Leu Gly Cys Pro Thr Ala Ile Lys Ala Pro  
                   85                                  90                                  95

Gly Trp Ala Asn Ser Ser Ala Gly Ser Gly Arg Ile Trp Met Asp His  
                   100                                  105                                  110

Val Ser Cys Arg Gly Asn Glu Ser Ala Leu Trp Asp Cys Lys His Asp  
           115                                  120                                  125

Gly Trp Gly Lys His Ser Asn Cys Thr His Gln Gln Asp Ala Gly Val  
   130                                  135                                  140

Thr Cys Ser Asp Gly Ser Asn Leu Glu Met Arg Leu Thr Arg Gly Gly  
  145                                  150                                  155                                  160

Asn Met Cys Ser Gly Arg Ile Glu Ile Lys Phe Gln Gly Arg Trp Gly  
                   165                                  170                                  175

Thr Val Cys Asp Asp Asn Phe Asn Ile Asp His Ala Ser Val Ile Cys  
           180                                  185                                  190

Arg Gln Leu Glu Cys Gly Ser Ala Val Ser Phe Ser Gly Ser Ser Asn  
       195                                  200                                  205

Phe Gly Glu Gly Ser Gly Pro Ile Trp Phe Asp Asp Leu Ile Cys Asn  
   210                                  215                                  220

Gly Asn Glu Ser Ala Leu Trp Asn Cys Lys His Gln Gly Trp Gly Lys  
  225                                  230                                  235                                  240

His Asn Cys Asp His Ala Glu Asp Ala Gly Val Ile Cys Ser Lys Gly



245	250	255
Ala Asp Leu Ser Leu Arg Leu Val Asp Gly Val Thr Glu Cys Ser Gly		
260	265	270
Arg Leu Glu Val Arg Phe Gln Gly Glu Trp Gly Thr Ile Cys Asp Asp		
275	280	285
Gly Trp Asp Ser Tyr Asp Ala Ala Val Ala Cys Lys Gln Leu Gly Cys		
290	295	300
Pro Thr Ala Val Thr Ala Ile Gly Arg Val Asn Ala Ser Lys Gly Phe		
305	310	315
Gly His Ile Trp Leu Asp Ser Val Ser Cys Gln Gly His Glu Pro Ala		
325	330	335
Val Trp Gln Cys Lys His His Glu Trp Gly Lys His Tyr Cys Asn His		
340	345	350
Asn Glu Asp Ala Gly Val Thr Cys Ser Asp Gly Ser Asp Leu Glu Leu		
355	360	365
Arg Leu Arg Gly Gly Gly Ser Arg Cys Ala Gly Thr Val Glu Val Glu		
370	375	380
Ile Gln Arg Leu Leu Gly Lys Val Cys Asp Arg Gly Trp Gly Leu Lys		
385	390	395
Glu Ala Asp Val Val Cys Arg Gln Leu Gly Cys Gly Ser Ala Leu Lys		
405	410	415
Thr Ser Tyr Gln Val Tyr Ser Lys Ile Gln Ala Thr Asn Thr Trp Leu		
420	425	430
Phe Leu Ser Ser Cys Asn Gly Asn Glu Thr Ser Leu Trp Asp Cys Lys		
435	440	445
Asn Trp Gln Trp Gly Gly Leu Thr Cys Asp His Tyr Glu Glu Ala Lys		
450	455	460
Ile Thr Cys Ser Ala His Arg Glu Pro Arg Leu Val Gly Gly Asp Ile		
465	470	475
		480

Pro Cys Ser Gly Arg Val Glu Val Lys His Gly Asp Thr Trp Gly Ser  
                     485                    490                    495

Ile Cys Asp Ser Asp Phe Ser Leu Glu Ala Ala Ser Val Leu Cys Arg  
                     500                    505                    510

Glu Leu Gln Cys Gly Thr Val Val Ser Ile Leu Gly Gly Ala His Phe  
                     515                    520                    525

Gly Glu Gly Asn Gly Gln Ile Trp Ala Glu Glu Phe Gln Cys Glu Gly  
                     530                    535                    540

His Glu Ser His Leu Ser Leu Cys Pro Val Ala Pro Arg Pro Glu Gly  
                     545                    550                    555                    560

Thr Cys Ser His Ser Arg Asp Val Gly Val Val Cys Ser Arg Tyr Thr  
                     565                    570                    575

Glu Ile Arg Leu Val Asn Gly Lys Thr Pro Cys Glu Gly Arg Val Glu  
                     580                    585                    590

Leu Lys Thr Leu Gly Ala Trp Gly Ser Leu Cys Asn Ser His Trp Asp  
                     595                    600                    605

Ile Glu Asp Ala His Val Leu Cys Gln Gln Leu Lys Cys Gly Val Ala  
                     610                    615                    620

Leu Ser Thr Pro Gly Gly Ala Arg Phe Gly Lys Gly Asn Gly Gln Ile  
                     625                    630                    635                    640

Trp Arg His Met Phe His Cys Thr Gly Thr Glu Gln His Met Gly Asp  
                     645                    650                    655

Cys Pro Val Thr Ala Leu Gly Ala Ser Leu Cys Pro Ser Glu Gln Val  
                     660                    665                    670

Ala Ser Val Ile Cys Ser Gly Asn Gln Ser Gln Thr Leu Ser Ser Cys  
                     675                    680                    685

Asn Ser Ser Ser Leu Gly Pro Thr Arg Pro Thr Ile Pro Glu Glu Ser  
                     690                    695                    700

Ala Val Ala Cys Ile Glu Ser Gly Gln Leu Arg Leu Val Asn Gly Gly

705		710		715		720
Gly Arg Cys Ala	Gly Arg Val Glu Ile Tyr His Glu Gly Ser Trp Gly					
	725		730			735
Thr Ile Cys Asp Asp Ser Trp Asp Leu Ser Asp Ala His Val Val Cys						
	740		745			750
Arg Gln Leu Gly Cys Gly Glu Ala Ile Asn Ala Thr Gly Ser Ala His						
	755		760			765
Phe Gly Glu Gly Thr Gly Pro Ile Trp Leu Asp Glu Met Lys Cys Asn						
	770		775			780
Gly Lys Glu Ser Arg Ile Trp Gln Cys His Ser His Gly Trp Gly Gln						
	785		790		795	800
Gln Asn Cys Arg His Lys Glu Asp Ala Gly Val Ile Cys Ser Glu Phe						
		805		810		815
Met Ser Leu Arg Leu Thr Ser Glu Ala Ser Arg Glu Ala Cys Ala Gly						
		820		825		830
Arg Leu Glu Val Phe Tyr Asn Gly Ala Trp Gly Thr Val Gly Lys Ser						
	835		840			845
Ser Met Ser Glu Thr Thr Val Gly Val Val Cys Arg Gln Leu Gly Cys						
	850		855			860
Ala Asp Lys Gly Lys Ile Asn Pro Ala Ser Leu Asp Lys Ala Met Ser						
	865		870		875	880
Ile Pro Met Trp Val Asp Asn Val Gln Cys Pro Lys Gly Pro Asp Thr						
		885		890		895
Leu Trp Gln Cys Pro Ser Ser Pro Trp Glu Lys Arg Leu Ala Ser Pro						
		900		905		910
Ser Glu Glu Thr Trp Ile Thr Cys Asp Asn Lys Ile Arg Leu Gln Glu						
	915		920			925
Gly Pro Thr Ser Cys Ser Gly Arg Val Glu Ile Trp His Gly Gly Ser						
	930		935			940

Trp Gly Thr Val Cys Asp Asp Ser Trp Asp Leu Asp Asp Ala Gln Val  
 945 950 955 960

Val Cys Gln Gln Leu Gly Cys Gly Pro Ala Leu Lys Ala Phe Lys Glu  
 965 970 975

Ala Glu Phe Gly Gln Gly Thr Gly Pro Ile Trp Leu Asn Glu Val Lys  
 980 985 990

Cys Lys Gly Asn Glu Ser Ser Leu Trp Asp Cys Pro Ala Arg Arg Trp  
 995 1000 1005

Gly His Ser Glu Cys Gly His Lys Glu Asp Ala Ala Val Asn Cys  
 1010 1015 1020

Thr Asp Ile Ser Val Gln Lys Thr Pro Gln Lys Ala Thr Thr Gly  
 1025 1030 1035

Arg Ser Ser Arg Gln Ser Ser Phe Ile Ala Val Gly Ile Leu Gly  
 1040 1045 1050

Val Val Leu Leu Ala Ile Phe Val Ala Leu Phe Phe Leu Thr Lys  
 1055 1060 1065

Lys Arg Arg Gln Arg Gln Arg Leu Ala Val Ser Ser Arg Gly Glu  
 1070 1075 1080

Asn Leu Val His Gln Ile Gln Tyr Arg Glu Met Asn Ser Cys Leu  
 1085 1090 1095

Asn Ala Asp Asp Leu Asp Leu Met Asn Ser Ser Glu Asn Ser His  
 1100 1105 1110

Glu Ser Ala Asp Phe Ser Ala Ala Glu Leu Ile Ser Val Ser Lys  
 1115 1120 1125

Phe Leu Pro Ile Ser Gly Met Glu Lys Glu Ala Ile Leu Ser His  
 1130 1135 1140

Thr Glu Lys Glu Asn Gly Asn Leu  
 1145 1150

<211> 141  
 <212> PRT  
 <213> Homo sapiens

<400> 14

Val Leu Ser Pro Ala Asp Lys Thr Asn Val Lys Ala Ala Trp Gly Lys  
 1 5 10 15

Val Gly Ala His Ala Gly Glu Tyr Gly Ala Glu Ala Leu Glu Arg Met  
 20 25 30

Phe Leu Ser Phe Pro Thr Thr Lys Thr Tyr Phe Pro His Phe Asp Leu  
 35 40 45

Ser His Gly Ser Ala Gln Val Lys Gly His Gly Lys Lys Val Ala Asp  
 50 55 60

Ala Leu Thr Asn Ala Val Ala His Val Asp Asp Met Pro Asn Ala Leu  
 65 70 75 80

Ser Ala Leu Ser Asp Leu His Ala His Lys Leu Arg Val Asp Pro Val  
 85 90 95

Asn Phe Lys Leu Leu Ser His Cys Leu Leu Val Thr Leu Ala Ala His  
 100 105 110

Leu Pro Ala Glu Phe Thr Pro Ala Val His Ala Ser Leu Asp Lys Phe  
 115 120 125

Leu Ala Ser Val Ser Thr Val Leu Thr Ser Lys Tyr Arg  
 130 135 140

<210> 15  
 <211> 146  
 <212> PRT  
 <213> Homo sapiens

<400> 15

Val His Leu Thr Pro Glu Glu Lys Ser Ala Val Thr Ala Leu Trp Gly  
 1 5 10 15

Lys Val Asn Val Asp Glu Val Gly Gly Glu Ala Leu Gly Arg Leu Leu  
 20 25 30

Val Val Tyr Pro Trp Thr Gln Arg Phe Phe Glu Ser Phe Gly Asp Leu

35

40

45

Ser Thr Pro Asp Ala Val Met Gly Asn Pro Lys Val Lys Ala His Gly  
 50 55 60

Lys Lys Val Leu Gly Ala Phe Ser Asp Gly Leu Ala His Leu Asp Asn  
 65 70 75 80

Leu Lys Gly Thr Phe Ala Thr Leu Ser Glu Leu His Cys Asp Lys Leu  
 85 90 95

His Val Asp Pro Glu Asn Phe Arg Leu Leu Gly Asn Val Leu Val Cys  
 100 105 110

Val Leu Ala His His Phe Gly Lys Glu Phe Thr Pro Pro Val Gln Ala  
 115 120 125

Ala Tyr Gln Lys Val Val Ala Gly Val Ala Asn Ala Leu Ala His Lys  
 130 135 140

Tyr His  
 145

<210> 16  
 <211> 146  
 <212> PRT  
 <213> Homo sapiens

<400> 16

Val His Leu Thr Pro Glu Glu Lys Thr Ala Val Asn Ala Leu Trp Gly  
 1 5 10 15

Lys Val Asn Val Asp Ala Val Gly Gly Glu Ala Leu Gly Arg Leu Leu  
 20 25 30

Val Val Tyr Pro Trp Thr Gln Arg Phe Phe Glu Ser Phe Gly Asp Leu  
 35 40 45

Ser Ser Pro Asp Ala Val Met Gly Asn Pro Lys Val Lys Ala His Gly  
 50 55 60

Lys Lys Val Leu Gly Ala Phe Ser Asp Gly Leu Ala His Leu Asp Asn  
 65 70 75 80

Leu Lys Gly Thr Phe Ser Gln Leu Ser Glu Leu His Cys Asp Lys Leu  
85 90 95

His Val Asp Pro Glu Asn Phe Arg Leu Leu Gly Asn Val Leu Val Cys  
100 105 110

Val Leu Ala Arg Asn Phe Gly Lys Glu Phe Thr Pro Gln Met Gln Ala  
115 120 125

Ala Tyr Gln Lys Val Val Ala Gly Val Ala Asn Ala Leu Ala His Lys  
130 135 140

Tyr His  
145

<210> 17  
<211> 146  
<212> PRT  
<213> Homo sapiens

<400> 17

Gly His Phe Thr Glu Glu Asp Lys Ala Thr Ile Thr Ser Leu Trp Gly  
1 5 10 15

Lys Val Asn Val Glu Asp Ala Gly Gly Glu Thr Leu Gly Arg Leu Leu  
20 25 30

Val Val Tyr Pro Trp Thr Gln Arg Phe Phe Asp Ser Phe Gly Asn Leu  
35 40 45

Ser Ser Ala Ser Ala Ile Met Gly Asn Pro Lys Val Lys Ala His Gly  
50 55 60

Lys Lys Val Leu Thr Ser Leu Gly Asp Ala Ile Lys His Leu Asp Asp  
65 70 75 80

Leu Lys Gly Thr Phe Ala Gln Leu Ser Glu Leu His Cys Asp Lys Leu  
85 90 95

His Val Asp Pro Glu Asn Phe Lys Leu Leu Gly Asn Val Leu Val Thr  
100 105 110

Val Leu Ala Ile His Phe Gly Lys Glu Phe Thr Pro Glu Val Gln Ala  
115 120 125

Ser Trp Gln Lys Met Val Thr Ala Val Ala Ser Ala Leu Ser Ser Arg  
 130 135 140

Tyr His  
 145

<210> 18  
 <211> 141  
 <212> PRT  
 <213> Homo sapiens

<400> 18

Ala Leu Ser Ala Glu Asp Arg Ala Leu Val Arg Ala Leu Trp Lys Lys  
 1 5 10 15

Leu Gly Ser Asn Val Gly Val Tyr Thr Thr Glu Ala Leu Glu Arg Thr  
 20 25 30

Phe Leu Ala Phe Pro Ala Thr Lys Thr Tyr Phe Ser His Leu Asp Leu  
 35 40 45

Ser Pro Gly Ser Ser Gln Val Arg Ala His Gly Gln Lys Val Ala Asp  
 50 55 60

Ala Leu Ser Leu Ala Val Glu Arg Leu Asp Asp Leu Pro His Ala Leu  
 65 70 75 80

Ser Ala Leu Ser His Leu His Ala Cys Gln Leu Arg Val Asp Pro Ala  
 85 90 95

Ser Phe Gln Leu Leu Gly His Cys Leu Leu Val Thr Leu Ala Arg His  
 100 105 110

Tyr Pro Gly Asp Phe Ser Pro Ala Leu Gln Ala Ser Leu Asp Lys Phe  
 115 120 125

Leu Ser His Val Ile Ser Ala Leu Val Ser Glu Tyr Arg  
 130 135 140

<210> 19  
 <211> 141  
 <212> PRT  
 <213> Homo sapiens

<400> 19



Ser Leu Thr Lys Thr Glu Arg Thr Ile Ile Val Ser Met Trp Ala Lys  
 1 5 10 15  
 Ile Ser Thr Gln Ala Asp Thr Ile Gly Thr Glu Thr Leu Glu Arg Leu  
 20 25 30  
 Phe Leu Ser His Pro Gln Thr Lys Thr Tyr Phe Pro His Phe Asp Leu  
 35 40 45  
 His Pro Gly Ser Ala Gln Leu Arg Ala His Gly Ser Lys Val Val Ala  
 50 55 60  
 Ala Val Gly Asp Ala Val Lys Ser Ile Asp Asp Ile Gly Gly Ala Leu  
 65 70 75 80  
 Ser Lys Leu Ser Glu Leu His Ala Tyr Ile Leu Arg Val Asp Pro Val  
 85 90 95  
 Asn Phe Lys Leu Leu Ser His Cys Leu Leu Val Thr Leu Ala Ala Arg  
 100 105 110  
 Phe Pro Ala Asp Phe Thr Ala Glu Ala His Ala Ala Trp Asp Lys Phe  
 115 120 125  
 Leu Ser Val Val Ser Ser Val Leu Thr Glu Lys Tyr Arg  
 130 135 140  
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 Ser Ser Pro Ser Ala Ile Leu Gly Asn Pro Lys Val Lys Ala His Gly  
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Lys Lys Val Leu Thr Ser Phe Gly Asp Ala Ile Lys Asn Met Asp Asn  
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Leu Lys Pro Ala Phe Ala Lys Leu Ser Glu Leu His Cys Asp Lys Leu  
85 90 95

His Val Asp Pro Glu Asn Phe Lys Leu Leu Gly Asn Val Met Val Ile  
100 105 110

Ile Leu Ala Thr His Phe Gly Lys Glu Phe Thr Pro Glu Val Gln Ala  
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Leu Val Val Tyr Pro Trp Thr Gln Arg Phe Phe Glu Ser Phe Gly Asp  
35 40 45

Leu Ser Thr Pro Asp Ala Val Met Gly Asn Pro Lys Val Lys Ala His  
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Gly Lys Lys Val Leu Gly Ala Phe Ser Asp Gly Leu Ala His Leu Asp  
65 70 75 80

Asn Leu Lys Gly Thr Phe Ala Thr Leu Ser Glu Leu His Cys Asp Lys  
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Leu His Val Asp Pro Glu Asn Phe Arg Leu Leu Gly Asn Val Leu Val  
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Cys Val Leu Ala His His Phe Gly Lys Glu Phe Thr Pro Pro Val Gln  
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